

Exploring the Contribution of Parental Perceptions to Childhood Anxiety

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Abstract

Parental rearing practices such as over-involvement are associated with childhood anxiety; however, little is known about the contribution of parental perceptions to child anxiety. This study explores the relationship between maternal and paternal perceptions of parenting and childhood anxiety. The perceived rearing behaviors and parental sense of competence (i.e., satisfaction and efficacy) of the parents of anxious children ($n = 59$) were compared with those of a non-clinical control sample ($n = 44$). In line with the findings from the literature that addresses externalizing disorders, parental sense of competence was significantly associated with childhood outcomes. Logistical regression suggested that paternal efficacy beliefs, acceptance, and maternal satisfaction were associated with an absence of clinical anxiety and lower levels of anxiety symptoms in children. Parental perceptions may thus provide an important area for understanding childhood anxiety.

Keywords: Child anxiety disorder, parental cognitions, rearing practice, sense of competence

Introduction

An increased understanding of early risk factors and mechanisms involved in the development and maintenance of anxiety disorders during childhood precedes the detection, prevention, and treatment of the condition. Parental anxiety, which may lead to a genetic vulnerability in the child (1), has been shown to contribute to child anxiety. The remaining risk is the result of individual or shared environmental factors, such as parental rearing behaviors. Bögels and Brechman-Toussaint (2) suggested that cognitions and beliefs held by parents may be important predictors of actual parental behavior, but they admitted that the study of this topic had been highly neglected. Further studies of parental perceptions and how they relate to childhood anxiety should therefore be conducted to address this shortcoming of the literature.

Parental perceptions and cognitions

At a general level, Bugental and Johnston (3) conceptualize parental perceptions and cognitions as deriving from two interacting levels: the schematic level and the event-dependent level. The

schematic level involves stable knowledge structures that operate implicitly and automatically, without conscious awareness, whereas the event-dependent level operates with high awareness and reflection. Both are driven by specific events and situations. Within these levels, four different types of parental cognitions may be identified: 1) *descriptive cognitions* describe the way interactions in the family are perceived to be based on experiences in the family context; 2) *analytical cognitions* relate to the understanding of causal relations for family-related events; 3) *evaluative-prescriptive cognitions* describe the idealistic perceptions (i.e., values and goals) of how the family should function; and 4) *efficacy cognitions* involve the correspondence between the perceived reality (descriptive cognitions) and the desired ideals (evaluative-prescriptive cognitions). Thus, a sense of parental efficacy arises when parents expect themselves to be able to cope with the demands of child rearing and to successfully influence the behavior and development of a child, including coping with difficulties in the parenting context (4).

A derivative of parental efficacy is parental satisfaction. Parental efficacy may be thought of as

referring to the instrumental aspects of parenting, whereas parental satisfaction describes the affective dimension. Parental satisfaction consists of the emotional derivatives of the parents' perceived ability to cope with the tasks of parenting in light of their idealized perceptions of how it should be. Parental efficacy and satisfaction have been joined in the overall concept of parental sense of competence; the two dimensions seem to be highly associated, although the direction of the effect remains unclear (5). It has been suggested that high parental satisfaction boosts parental efficacy (6) and that high parental efficacy predicts high parental satisfaction (4).

Parental cognitions and sense of competence have been studied extensively with regard to externalizing child behavior. Parental self-efficacy beliefs have been associated with child adjustment, and they contribute significantly to the parent-child interaction when difficult child behavior is present (4,5). Furthermore, increased parental competence is associated with reduced levels of problem behavior in children (7). Some treatment programs designed to alleviate problem behavior in children build on the notion that enhancing the skills, confidence, and self-sufficiency of the parents will promote child competencies within the behavioral, social, intellectual, and emotional fields (8). Findings from the field of externalizing disorders suggest that further research regarding the importance of parental perceptions on childhood anxiety should also be conducted.

Parental perceptions and child anxiety

To fully understand how the perceived family dynamics may be involved in creating negative parental perceptions, one should consider the key dimensions of rearing behavior involved in child anxiety. Anxious modeling, over-involvement, and excessive control as well as high levels of negativity have been reported to be associated with increased levels of child anxiety (9). However, evidence for the unique contribution to childhood anxiety of each of these parenting variables is inconsistent (10). The most stable evidence has been collected for the effect of parental over-involvement. It suggests that reduced autonomy granting and excessive involvement are related to an increased risk of child anxiety (11,12). Current theories suggest a bidirectional association in which parental factors may increase the risk of anxiety in the child and in which child anxiety may increase the risk of negative behaviors in the parent (9). Although some of this evidence is collected via observational measures of actual parental behavior, most studies have included self- or child-report measures (13). Studies that include child-report measures suggest

that clinically anxious children perceive their parents as less accepting as compared with control children (14). Moreover, a positive correlation between the child's level of worry and his or her perceptions of parental rejection and anxious rearing has been reported in non-clinical (15) and clinical child samples (16). Children with high levels of social anxiety have reported that perceived anxious behavior in their fathers—but not in their mothers—increased their level of anxiety in a hypothetical social situation (17).

Studies of parental cognitions (other than the ones mentioned previously) that have discussed perceived rearing behavior have predominantly addressed parental cognitions at the descriptive level. These have mainly addressed the potential influence of maternal expectations regarding the anxious behavior of the child on child adjustment. Maternal expectations of poor coping behavior in the child (18), parental beliefs about child anxiety (19), and elevated threat perceptions (20) have been suggested to be characteristic of maternal cognitions in mothers of clinically anxious children (21). Because most studies solely focus on the descriptive level of parental cognitions, important information about the family dynamics, including the impact of parental perceptions on other levels (e.g., the efficacy level), should be assessed in populations in which childhood anxiety disorders are present. The assessment of parental efficacy beliefs supplements the descriptive level by adding a subjective evaluation of the agreement between perceived and desired reality.

Parental gender

Most studies of parental behavior involve only mothers. However, studies involving fathers have shown that fathers of anxious children exhibit more controlling and less autonomy-granting behavior than fathers of non-anxious children (22,23). It has been suggested that fathers play a different role than mothers by encouraging children to explore the external world to a larger extent than mothers do (24). To date, little is known about how parental perceptions and parent-child interactions are moderated by parent gender (10).

A recent study of 586 mothers and 615 fathers found fathers to score higher on the satisfaction subscale than mothers, whereas mothers scored higher on the efficacy subscale (25). However, only one parent per family participated, thereby making it difficult to disentangle the contribution of family dynamics. Nevertheless, the finding that fathers associate the parenting role with higher satisfaction has also been demonstrated by Rogers and Matthews (26), who assessed co-parenting mothers and fathers from a sample of individuals

participating in a parenting program. Despite these findings, the intergenerational transmission mechanisms that link parental factors to child anxiety are still not clearly understood (21). Attempts should be made to understand which factors other than genetic predisposition, parental anxiety, and parenting behaviors are associated with childhood anxiety.

Aim of the study

The goal of the present study was to explore whether parent-reported beliefs about parental behavior, efficacy, and satisfaction contribute to children's reported levels of anxiety. We also assessed the unique influence of mothers' and fathers' perceptions of parenting behavior and competence on childhood anxiety. As a result of the lack of studies addressing this topic within the field of childhood anxiety disorders, this study is exploratory in nature, and we therefore caution the reader when interpreting the results. However, drawing on findings from the literature that addresses externalizing behavior, we expected to find similar significant associations between reported levels of anxiety and parental efficacy, satisfaction, and behavior. We also expected parents of anxious children to report lower levels of competence and satisfaction than parents of non-anxious control children. Although conclusions from the literature about the unique contribution of maternal and paternal perceptions are still preliminary in nature, we did expect to find some gender-specific differences with regard to contribution.

Materials and methods

Participants

The study enrolled two groups of participants. The clinical sample ($n = 59$) included children between the ages of seven and 12 years who were referred by their parents for treatment at a specialized anxiety clinic. The control sample consisted of non-anxious children ($n = 44$). We recruited control children in two waves. During the first wave, we matched control children with the sample children for age, gender, and area of residence. During the second wave, we recruited control children via a local school with similar intake criteria. As a result, both waves of control children are effectively matched with the sample children in terms of gender, age, and area of residence. For both waves, we sent information letters to the parents, and we encouraged them to contact the clinic if they wished to participate. Because the parents of the sample children self-referred their children, we only

enrolled self-referred controls, which led to different sample sizes.

Procedures

Children and parents participated in a screening for the fulfillment of inclusion criteria. The assessment procedure lasted approximately three hours and comprised a self-reported battery of tests as well as interviews. Tests and questionnaires were administered in a predetermined order. As a result of a change in the testing procedure, some parents were not asked to complete all questionnaires. However, analyses of dropouts did not reveal any relevant differences between those who completed the full-range assessment and those who did not.

The inclusion criteria for the clinical sample were as follows: 1) the child had a primary diagnosis of separation anxiety disorder, generalized anxiety disorder, social phobia, or a specific phobia as diagnosed with the use of the *Anxiety Disorders Interview Schedule for DSM-IV, Child and Parent Versions* (ADIS-IV-C/P) (27); 2) the child had an IQ of 70 or more; and 3) at least one parent was a native Danish speaker. Inclusion criteria for the control sample were as follows: 1) the child did not meet the criteria for any anxiety disorder based on the parent version of the ADIS-IV-C/P; and 2) at least one parent was a native Danish speaker. The sample was thoroughly described in a recently published paper about treatment effect (28). The results demonstrated that 46% of the sample had separation anxiety disorder, 26% had a specific phobia, 22% had generalized anxiety disorder, and 6% had social phobia as their primary disorder (28). The mean clinical severity rating for the primary disorder of the total sample was 7.4.

Measures

The Screen for Child Anxiety Related Emotional Disorders (SCARED-R) measures *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV)-related types of anxiety disorders in children (29). It consists of 69 items scored on a 3-point scale (0 = almost never; 1 = sometimes; and 2 = often). In the current study, we applied the child-reported total scale. The SCARED-R has been reported to have satisfactory test-retest reliability and good internal consistency (29). It discriminates well between anxiety disorders and other types of psychopathology, and it is sensitive to effects of treatment (30). In the present study, the child-report data from the SCARED-R were applied. Our data yielded excellent scale reliability, with a Cronbach's alpha of .95 for the total scale.

A standardized Danish version of the Symptom Checklist (SCL) was used (31). The SCL is a widely used questionnaire that assesses psychological

symptoms and distress in adults. We used a sum score composites of the anxiety subscale (ten items) and the phobia subscale (seven items) in the present study. It was calculated as the total sum of the included items divided by the number of items. Each item consists of a statement that is rated on a scale that ranges from 0 to 4 (0 = not at all, 2 = somewhat, 4 = very much); low scores indicate lower levels of psychopathology. The psychometric properties of the anxiety and phobia subscales were satisfactory (Cronbach's alphas of .86 and .80, respectively) (32).

The Parenting Sense of Competence Scale (PSOC) is a self-reported scale that measures the parental sense of competence in the two dimensions of satisfaction and efficacy (33). It consists of 16 items rated on a 6-point Likert scale (6 = strongly disagree, 1 = strongly agree). Internal consistency (25), convergent and discriminant validity (34, 35), and reliability have been shown to be satisfactory (33). High scores indicate higher satisfaction and higher efficacy, respectively. In the present study, PSOC reliability was found to be good, with a Cronbach's alpha of more than .7 for both mothers' and fathers' efficacy and satisfaction scales.

The Rearing Behavior Questionnaire (RBQ) measures perceptions of parental behavior, with each parent rating his or her own style (36). The RBQ consists of 33 items rated on a 4-point scale. In the present study, we applied the two RBQ dimensions: overprotection versus autonomy granting and rejection versus acceptance. Higher scores indicate more positive parental behavior. The internal consistency, construct validity, and test-retest reliability of this tool have been reported to be good (36). In our data, overall internal scale reliability coefficients for RBQ were excellent, with Cronbach's alphas of .86 for mothers and .85 for fathers. RBQ subscales for autonomy also had acceptable reliability, with Cronbach's alphas of more than .7 for both mothers and fathers. The RBQ subscale that measured acceptance had lower yet acceptable reliability, with Cronbach's alphas of .65 for both mothers and fathers.

Ethical statement

The study was approved by the Institutional Review Board at the University of Copenhagen, and it complies with Danish ethical standards regarding the assessment and treatment of children enrolled in psychological research studies. Written informed consent to participate was obtained from all parents of participating children.

Data analyses

We conducted preliminary Kruskal-Wallis tests to examine whether parents in the clinical and control

groups differed with regard to education level and household income. Parents' anxiety symptom levels were also compared with a grouped *t*-test on a sum score composite of the anxiety and phobia subscales of the SCL.

For the main analysis, we conducted logistic regressions to assess whether parental perceptions of parental efficacy and satisfaction (PSOC) as well as of autonomy and parental acceptance (RBQ) were associated with the presence of an anxiety diagnosis in the child. We then conducted ordinary least squares (OLS) regression analyses to assess whether the same input was associated with the continuous total anxiety symptoms level (SCARED-Total Scale) as reported by the child. To explore the specific influence of parental gender, we ran separate analyses for mothers and fathers. We provided two full models for each parent in addition to a common model that included data from both parents, with diagnosis as output.

During the initial analysis, all four subscales (two from PSOC and two from RBQ) were included as input variables in both models for both parents. This study is exploratory in nature, so, to achieve the most parsimonious models, we ran backward regression procedures for both the logistic regressions and the OLS regressions. Both logistic and OLS regressions were conducted with the default .05 variable inclusion criteria and the .1 exclusion criteria. The logistic regressions backward procedure was set up within a Wald chi-square algorithm for the inclusions and exclusions and with a maximum of 20 iterations used to reach convergence.

Results

The clinical sample ($n = 59$) consisted of 30 boys (mean age: nine years and five months) and 29 girls (mean age: nine years and nine months). The control sample comprised 22 boys (mean age: nine years and five months) and 22 girls (mean age: nine years and eight months). The comparison of ranked means by the Kruskal-Wallis test revealed no noticeable differences between parents in the clinical group as compared with those in the control group or in the categorized educational levels for either the mothers ($\chi^2 = 1.53$; $p = .22$) or the fathers ($\chi^2 = 1.49$; $p = .24$). The anxiety symptom levels of the parents did not differ significantly between sample parents and control parents ($t = -1.905$ and $p = .05$ for mothers; $t = -1.26$ and $p = .21$ for fathers). However, families in the clinical group versus the control group differed significantly with regard to household income ($\chi^2 = 4.41$; $p = .04$), with the members of the clinical group having higher incomes. Means and standard deviations for

parental perceptions are shown in Table 1. Equivalent analyses comparing the first and second waves of controls revealed no differences between the control groups.

TABLE 1. Means and standard deviations of variables in the clinical and control groups

	Clinical		Control	
	Mothers	Fathers	Mothers	Fathers
Parental efficacy	31.9 (4.3)	29.6 (4.7)	34.2 (7.5)	32.7 (7.0)
Parental satisfaction	41.8 (6.7)	43.4 (5.1)	45.0 (9.4)	44.7 (9.4)
Perceived autonomy granting	41.9 (4.5)	41.9 (4.1)	42.0 (8.0)	41.6 (8.7)
Perceived acceptance	35.6 (2.4)	34.8 (3.0)	35.8 (6.1)	34.8 (6.8)

Note: There are no significant differences between the groups

Pearson's correlations between mother and father reports in both groups are given in Table 2. Overall, there were no significant correlations between maternal and paternal perceptions in the clinical group, whereas highly significant correlations were present for most variables in the control group.

TABLE 2. Pearson's correlations between maternal and paternal variables in the two groups

	Mothers	Fathers				
		1	2	3	4	5
Clinical	1 Efficacy	-.02	-.02			
	2 Satisfaction	-.09	.11			
	3 Psychological control			-.01	-.02	-.21
	4 Autonomy granting			-.26	.15	.16
	5 Acceptance			-.16	-.09	.24
Control	1 Efficacy	.28	.39*			
	2 Satisfaction	.82**	.87**			
	3 Psychological control			.74**	.63**	.70**
	4 Autonomy granting			.62**	.88**	.89**
	5 Acceptance			.77**	.85**	.93**

* $p < .05$; ** $p < .01$

Anxiety diagnoses as the outcome variable

A total of 80 mothers completed both the PSOC and the RBQ. As a result of changes in the administration of the questionnaire packages, an additional 23 mothers did not complete the RBQ or the PSOC. Apart from that, the data included three cases with less than 10% randomly missing user data for any subscale; these data were replaced by case means and included in the analysis.

The logistic model for mothers of anxious children ($n = 50$) versus control children ($n = 30$) is presented in Table 3. This model converged after three steps. In step two, RBQ acceptance was excluded on the basis of the .1 criterion ($\beta = -0.074$; $\chi^2 = .83$; $P = .36$). In step three, PSOC sense of efficacy was excluded ($\beta = -0.054$; $\chi^2 = .77$; $p = .38$). The final model for mothers suggests that high maternal satisfaction with parenting as measured by the PSOC scale was associated with an increased likelihood of having a child without an anxiety diagnosis. The granting of autonomy was still kept

as a covariate in the model on the basis of the .1 exclusion criterion, but it was not significant under the Cronbach's alpha .5 criterion (Table 3).

TABLE 3. Logistic regression for mother's parental sense of competence and rearing behavior

		β value	SE*	P value
Step 2	Parental efficacy	0.054	.062	.380
	Parental satisfaction	0.108	.058	.063
	Granting of autonomy	-0.121	.065	.064
Step 3	Parental satisfaction	0.130	.054	.016
	Granting of autonomy	-0.113	.063	.075

*SE = Standard Error

A similar model that applied data from 77 fathers (46 who had diagnosed anxious children and 31 who had non-anxious control children) is displayed in Table 4. As with the mothers, a change in administration procedure led to 25 cases that did not include RBQ or PSOC data. Apart from that, the data included an ignorable single case with less than 10% randomly missing user data for any subscale of the RBQ; those values were thus replaced by case means.

The fathers' logistic model converged after three steps with a model that included PSOC sense of efficacy ($\beta = 0.18$; $\chi^2 = 7.98$; $p = .005$) and reduced levels of acceptance ($\beta = -0.145$; $\chi^2 = 3.91$; $p = .048$). Parental satisfaction for fathers was excluded in step two ($\beta = 0.012$; $\chi^2 = .41$; $p = .84$). and granting of autonomy was excluded in step three ($\beta = -0.061$; $\chi^2 = .82$; $p = .37$)

TABLE 4. Logistic regression for father's parental sense of competence and rearing behavior

		β value	SE*	p value
Step 2	Parental efficacy	0.190	.065	.003
	Granting of autonomy	-0.061	.068	.365
	Acceptance	-0.090	.093	.332
Step 3	Parental efficacy	0.179	.062	.005
	Acceptance	-0.145	.052	.048

*SE = Standard Error

Anxiety symptom level as the outcome variable

We ultimately conducted an exploratory backward OLS regression with the same input variables. This model converged after three steps. The final model suggested that, for mothers, PSOC satisfaction was associated with the child reported total anxiety symptoms level score as measured by SCARED-R ($\beta = -0.374$; $t = -2.21$; $p = .03$). In other words, high maternal satisfaction was associated with lower anxiety levels. As in the logistic diagnosis-based model, the OLS model also withheld mothers' granting of autonomy; however, this was not significant with a Cronbach's alpha value of .5 ($\beta = 0.305$; $t = 1.81$; $p = .08$).

For fathers ($n = 77$), higher PSOC efficacy was associated with lower total anxiety levels ($\beta = -0.451$; $t = -3.24$; $p = .002$). As in the logistic model, for the fathers, the model also withheld the acceptance covariate in the final model ($\beta = 0.232$; $t = 1.67$; $p = .09$). However, this was not significant with a Cronbach's alpha value of .05.

Discussion

We set out to explore whether parental perceptions about their roles as parents should receive attention as part of the theoretical understanding of childhood anxiety disorders. Results of the present, highly explorative study point to the possibility of differential associations between child anxiety and maternal and paternal perceptions. For mothers, higher levels of parental satisfaction and lower granting of autonomy during child rearing are related to a decrease in the occurrence of childhood anxiety. Alternatively, for fathers, lower levels of child anxiety are related to a higher paternal sense of efficacy and acceptance.

Previous theoretical models of the development of anxiety during childhood have incorporated the role of parental behaviors (37), with most empirical evidence supporting autonomy granting, over-involvement, and anxious modeling as important contributors (13) in a bidirectional interplay between parents and children (9). Some models even incorporate parental expectations of their children's ability to cope with anxiety-provoking situations (21). Despite the existence of these models, mechanisms that link parental factors to child anxiety are still not clearly understood, although the effects of these mechanisms have consistently been reported to be bidirectional in nature; in other words, parents influence child outcome variables while children influence parent outcome variables (9,38).

Our results demonstrated that autonomy granting and parental competence together formed the best models for explaining the variance in the presence of childhood anxiety for mothers but not for fathers, for whom acceptance together with parental competence provided the best-fitting model. Decreased parental competence was the sole predictor that was significantly associated with high levels of child anxiety for both parents.

The findings that parental efficacy beliefs and satisfaction with the parenting role are of importance when examining child anxiety is in line with previous studies that linked these constructs with externalizing behavior during childhood (5,8). Although firm conclusions should not yet be drawn with regard to their role in relation to childhood anxiety, our results suggest that parental perceptions

of parental competence are also of importance for the adjustment of children with internalizing difficulties.

Our results indicated that, although perceptions regarding specific rearing practices (i.e., autonomy granting and acceptance) were included in the statistical models of the variance of anxiety in children, these correlations were small and in the opposite direction of what would be expected (13). A decrease in the maternal granting of autonomy was associated with the lack of an anxiety diagnosis. However, a very recent study that examined the impact of child age on this relationship found a similar pattern of correlations as that seen in our study (39). In a community sample of children less than 10 years old, both maternally and paternally increased levels of autonomy granting were associated with increased levels of anxiety. The authors suggested that the granting of non-age-appropriate autonomy may increase the likelihood of anxiety in the children (39). Because clinically anxious children generally strive to obtain control over their environment and thereby often take on adult responsibilities, it is highly likely that similar mechanisms are at play in our study, which included a high number of children with clinically diagnosed anxiety with a mean age of less than 10 years.

Impact of parental gender

It has been suggested that fathers play a different role as compared with mothers in that they encourage their children to explore the external world to a larger extent than mothers do (24). To date, little is known about how parental perceptions and parent-child interactions are moderated by parent gender (10).

Our findings highlight the possibility that mothers and fathers may contribute differently to child anxiety. Maternal satisfaction and paternal efficacy beliefs were consistently associated with child outcome at a diagnostic level as well as with anxiety symptoms. Our finding of a negative correlation between maternal satisfaction and anxiety in the child is in accordance with previous findings that maternal perceptions of child emotionality influence maternal satisfaction, regardless of maternal efficacy beliefs (4). However, it is partly in contrast with the result of two other studies (25,26). These studies found significant gender differences but in the opposite direction, with satisfaction found to be high in fathers and efficacy found to be high in mothers. The previous studies assessed parenting in a normal sample as well as in a sample in which the parents attended a parenting program; in our sample, we included a large number of children with yet-to-be-treated clinical anxiety. We found lower levels of paternal efficacy and maternal satisfaction

to be associated with anxiety in the child. Thus, the present sample may represent more vulnerable family dynamics than have been examined previously. As previous studies have suggested, the interactions between parents and children may be bidirectional (9). It is thus likely that children who experience difficulties within the clinical range affect parental perceptions differently than when only elevated levels of symptoms of difficulties are in play. For example, children who suffer from separation anxiety disorders will often rely heavily on maternal reassurance, avoid parting from their mother, and resist attempts that their mother makes to part from them. This behavior may influence maternal satisfaction as the mother becomes a victim of the child's anxiety. However, the father is often less affected by this situation, because the child may present with less anxious reactions in relation to him. A father's sense of parental competence may therefore be less affected by fathering a child with clinical levels of anxiety.

An unexpected finding in our study was the different patterns of association between the mother and father reports in the two groups. In the control group, most associations between maternal and paternal reports were highly significantly correlated, whereas the opposite was true for the clinical group. As a clinician, one often experiences marked differences in maternal and paternal understanding of the child's problems and their own behaviors when the child is referred for treatment. In addition, the anxious child will often react very differently toward each parent. Our findings may indicate that the parents of clinically anxious children have very different experiences with—and thus perceptions of—the rearing process. It may therefore be helpful if these issues are addressed and the parents are again able to establish a more unified understanding of their child as well as of their own and their partner's perceptions and behaviors. This assumption is in part corroborated by a qualitative study that investigated the parental understanding of having fathers involved in treatment (40). One of the findings reported in this study was that mothers and fathers obtained a more unified view of their children after participating in therapy together.

Finally, parents in the control group of the present study had a higher overall household income than the parents in the clinical group; however, there were no significant differences in relation to educational level or anxiety levels. Although both top-down and bottom-up studies have shown an increased risk of anxiety among family members, the lack of an increased level of anxiety among the parents in this study is corroborated by reports that other specialized

clinics have not found increased levels of anxiety or depression among parents seeking help for their anxious children (41).

Limitations

Although our explorative study provides new data for this area of study, it is not without limitations. One such limitation concerns the specificity of the parental effects; this point was previously made by Murray and colleagues (1). Basically, it remains unclear whether the identified patterns of maternal and paternal perceptions are specifically related to the development of childhood anxiety or if they are more accurately interpreted in the broader context of childhood psychopathology. In addition, our small sample sizes and the ethnicity of our subjects may compromise the generalizability of the findings. Our study consisted of ethnic Danes and did not include children with other backgrounds; however, Denmark is a small country with a very homogenous ethnic background, thereby allowing for generalizations to other Caucasian populations. The scarcity of prior studies against which to discuss our results also cautions against the drawing of firm conclusions at present. Nonetheless, our results point to an important and previously neglected area that is of theoretical importance. It is also relevant to the treatment of childhood anxiety disorders, so it should therefore be examined in further detail.

We also acknowledge that questionnaire-based methods have potential limitations, but they also have advantages. Thorough observational assessments of parenting often result in more solid associations between variables of child anxiety and parenting than can be obtained with parent or child self-reports (21). Alternatively, observational measures of parent-child interactions in a research setting may not reflect the behaviors that maintain child anxiety during everyday life (42). Results that are based solely on self-ratings should generally be interpreted with care, because they are at risk of being influenced by subjective evaluations. As pointed out by McClure and colleagues (43), self-ratings may not mirror actual rearing behavior. Instead, they may be affected by biased cognitions toward a perceived threat, which is frequently reported among clinically anxious individuals and children with high levels of trait anxiety (44,45). However, the present study focused on perceptions. We did not aim to evaluate the actual rearing behavior, but rather sought to examine how parental perceptions (in this case, perceptions about the parent-child interaction and parental sense of competence) can potentially affect child adjustment.

Conclusions and applied implications

In line with studies found in the literature regarding externalizing behaviors during childhood, we explored the possible contribution of parental perceptions of parental satisfaction and efficacy in explaining childhood anxiety. We supplemented the body of existing literature by trying to unravel the possible gender-specific contributions of paternal and maternal perceptions for explaining variances in symptom levels as well as the presence of anxiety diagnoses in children. Our results demonstrated that the level of parental sense of competence and the presence of child anxiety were indeed associated. Although this association is most likely bidirectional, the present study outlines the potential importance of parental perceptions in the development of anxious children. However, further studies are required before firm conclusions can be drawn. Parental differences were also found, with maternal satisfaction and paternal efficacy beliefs providing differential and significant contributions in the statistical models. Further knowledge of the impact of parental competence on the development and maintenance of anxiety disorders may be of use to researchers trying to unravel the risk mechanisms of the disorder as well as to clinicians working with families with anxious children. Because parents with lower levels of parental competence may be reluctant to engage in therapy or to disengage from therapy, it may be necessary to address this issue early during the therapy process to ensure a solid working relationship with the parents as well as their compliance with treatment.

Conflict of interest

The authors declare that they have no conflicts of interest.

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